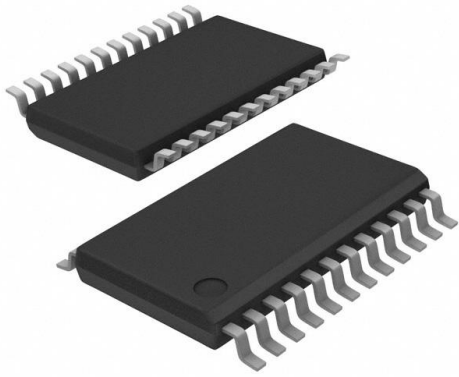


MM74HC154MTC Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	MM74HC154MTC-DG
Manufacturer	onsemi
Manufacturer Product Number	MM74HC154MTC
Description	IC DECODER 1 X 4:16 24TSSOP
Detailed Description	Decoder 1 x 4:16 24-TSSOP



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RFQ Email: Info@DiGi-Electronics.com

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Purchase and inquiry

Manufacturer Product Number:

MM74HC154MTC

Series:

74HC

Type:

Decoder

Independent Circuits:

1

Voltage Supply Source:

Single Supply

Operating Temperature:

-40°C ~ 85°C

Package / Case:

24-TSSOP (0.173", 4.40mm Width)

Base Product Number:

74HC154

Manufacturer:

onsemi

Product Status:

Obsolete

Circuit:

1 x 4:16

Current - Output High, Low:

5.2mA, 5.2mA

Voltage - Supply:

2V ~ 6V

Mounting Type:

Surface Mount

Supplier Device Package:

24-TSSOP

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001



September 1983
Revised July 2003

MM74HC154

4-to-16 Line Decoder

General Description

The MM74HC154 decoder utilizes advanced silicon-gate CMOS technology, and is well suited to memory address decoding or data routing applications. It possesses high noise immunity, and low power consumption of CMOS with speeds similar to low power Schottky TTL circuits.

The MM74HC154 have 4 binary select inputs (A, B, C, and D). If the device is enabled these inputs determine which one of the 16 normally HIGH outputs will go LOW. Two active LOW enables (G1 and G2) are provided to ease cascading of decoders with little or no external logic.

Each output can drive 10 low power Schottky TTL equivalent loads, and is functionally and pin equivalent to the 74LS154. All inputs are protected from damage due to static discharge by diodes to V_{CC} and ground.

Features

- Typical propagation delay: 21 ns
- Power supply quiescent current: 80 μ A
- Wide power supply voltage range: 2–6V
- Low input current: 1 μ A maximum

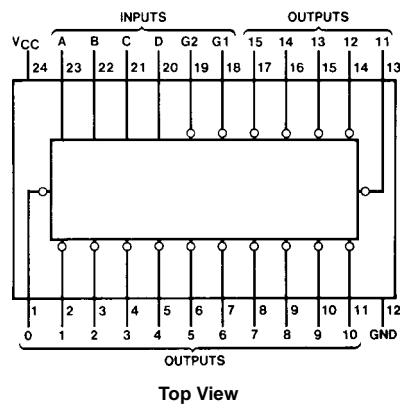
Ordering Code:

Order Number	Package Number	Package Description
MM74HC154WM	M24B	24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
MM74HC154MTC	MTC24	24-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
MM74HC154N	N24C	24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

Connection Diagram

Pin Assignments for DIP, SOIC and TSSOP



Truth Table

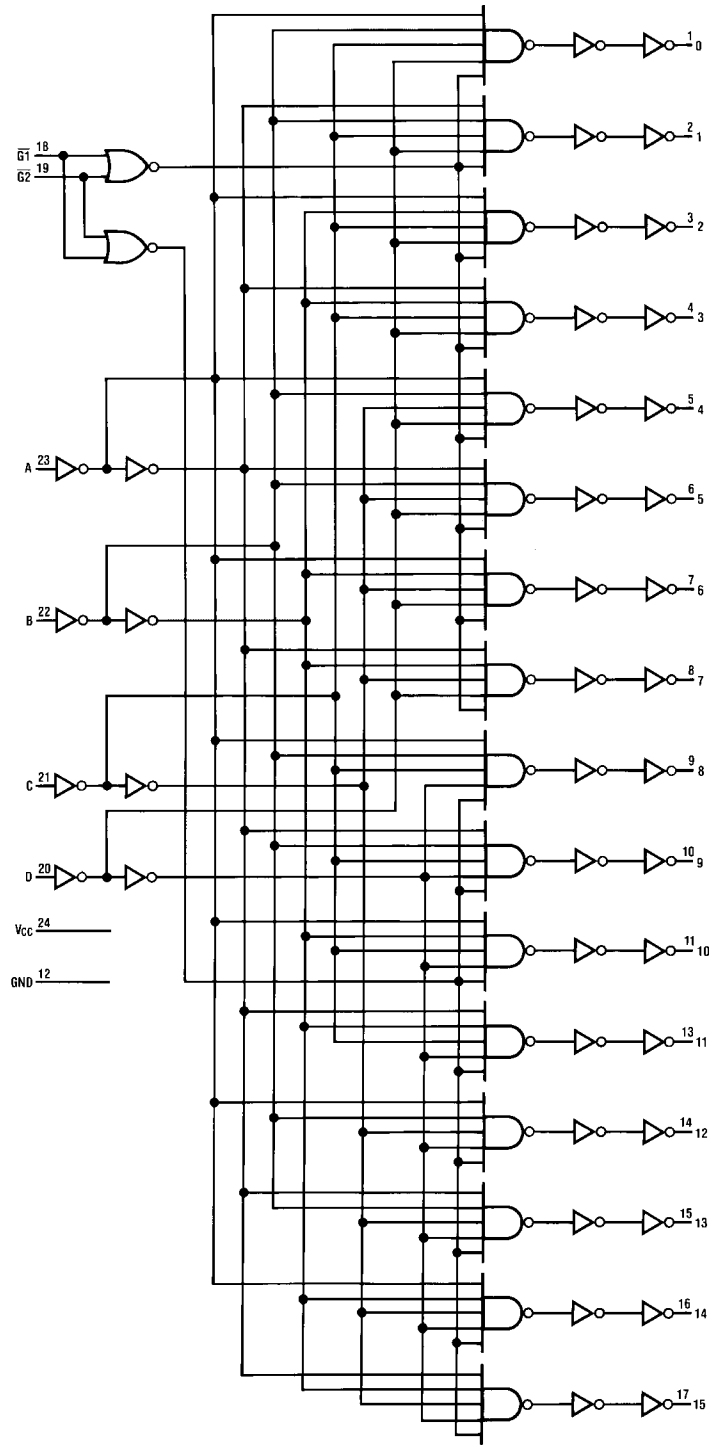
		Inputs				Low
$\overline{G1}$	$\overline{G2}$	D	C	B	A	Output (Note 1)
L	L	L	L	L	L	0
L	L	L	L	L	H	1
L	L	L	L	H	L	2
L	L	L	L	H	H	3
L	L	L	H	L	L	4
L	L	L	H	L	H	5
L	L	L	H	H	L	6
L	L	L	H	H	H	7
L	L	H	L	L	L	8
L	L	H	L	L	H	9
L	L	H	L	H	L	10
L	L	H	L	H	H	11
L	L	H	H	L	L	12
L	L	H	H	L	H	13
L	L	H	H	H	L	14
L	L	H	H	H	H	15
L	H	X	X	X	X	—
H	L	X	X	X	X	—
H	H	X	X	X	X	—

Note 1: All others HIGH

MM74HC154 4-to-16 Line Decoder

MM74HC154

Logic Diagram



Absolute Maximum Ratings ^(Note 2)		Recommended Operating Conditions					
(Note 3)							
Supply Voltage (V_{CC})	-0.5 to +7.0V	Min	Max Units				
DC Input Voltage (V_{IN})	-1.5 to $V_{CC} + 1.5V$	2	6 V				
DC Output Voltage (V_{OUT})	-0.5 to $V_{CC} + 0.5V$	0	V_{CC} V				
Clamp Diode Current (I_{IK}, I_{OK})	± 20 mA	-40	+85 °C				
DC Output Current, per pin (I_{OUT})	± 25 mA	Operating Temperature Range (T_A)					
DC V_{CC} or GND Current, per pin (I_{CC})	± 50 mA	Input Rise or Fall Times					
Storage Temperature Range (T_{STG})	-65°C to +150°C	(t_r, t_f) $V_{CC} = 2.0V$	1000 ns				
Power Dissipation (P_D)		$V_{CC} = 4.5V$	500 ns				
(Note 4)	600 mW	$V_{CC} = 6.0V$	400 ns				
S.O. Package only	500 mW	Note 2: Absolute Maximum Ratings are those values beyond which damage to the device may occur.					
Lead Temperature (T_L)		Note 3: Unless otherwise specified all voltages are referenced to ground.					
(Soldering 10 seconds)	260°C	Note 4: Power Dissipation temperature derating — plastic "N" package: -12 mW/°C from 65°C to 85°C.					
DC Electrical Characteristics (Note 5)							
Symbol	Parameter	Conditions	V_{CC}	$T_A = 25^\circ C$		Units	
				Typ	Guaranteed Limits		
V_{IH}	Minimum HIGH Level Input Voltage		2.0V		1.5	1.5	V
			4.5V		3.15	3.15	
			6.0V		4.2	4.2	
V_{IL}	Maximum LOW Level Input Voltage		2.0V		0.5	0.5	V
			4.5V		1.35	1.35	
			6.0V		1.8	1.8	
V_{OH}	Minimum HIGH Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL} $ I_{OUT} \leq 20 \mu A$	2.0V	2.0	1.9	1.9	V
			4.5V	4.5	4.4	4.4	
			6.0V	6.0	5.9	5.9	
		$V_{IN} = V_{IH}$ or V_{IL} $ I_{OUT} \leq 4.0$ mA $ I_{OUT} \leq 5.2$ mA	4.5V	4.2	3.98	3.84	V
			6.0V	5.7	5.48	5.34	
V_{OL}	Maximum LOW Level Output Voltage	$V_{IN} = V_{IH}$ or V_{IL} $ I_{OUT} \leq 20 \mu A$	2.0V	0	0.1	0.1	V
			4.5V	0	0.1	0.1	
			6.0V	0	0.1	0.1	
		$V_{IN} = V_{IH}$ or V_{IL} $ I_{OUT} \leq 4.0$ mA $ I_{OUT} \leq 5.2$ mA	4.5V	0.2	0.26	0.33	V
			6.0V	0.2	0.26	0.33	
I_{IN}	Maximum Input Current	$V_{IN} = V_{CC}$ or GND	6.0V		± 0.1	± 1.0	μA
I_{CC}	Maximum Quiescent Supply Current	$V_{IN} = V_{CC}$ or GND $I_{OUT} = 0 \mu A$	6.0V		8.0	80	μA
Note 5: For a power supply of 5V $\pm 10\%$ the worst case output voltages (V_{OH} , and V_{OL}) occur for HC at 4.5V. Thus the 4.5V values should be used when designing with this supply. Worst case V_{IH} and V_{IL} occur at $V_{CC} = 5.5V$ and 4.5V respectively. (The V_{IH} value at 5.5V is 3.85V.) The worst case leakage current (I_{IN} , I_{CC} , and I_{OZ}) occur for CMOS at the higher voltage and so the 6.0V values should be used.							

MM74HC154

AC Electrical Characteristics $V_{CC} = 5V$, $T_A = 25^\circ C$, $C_L = 15$ pF, $t_r = t_f = 6$ ns

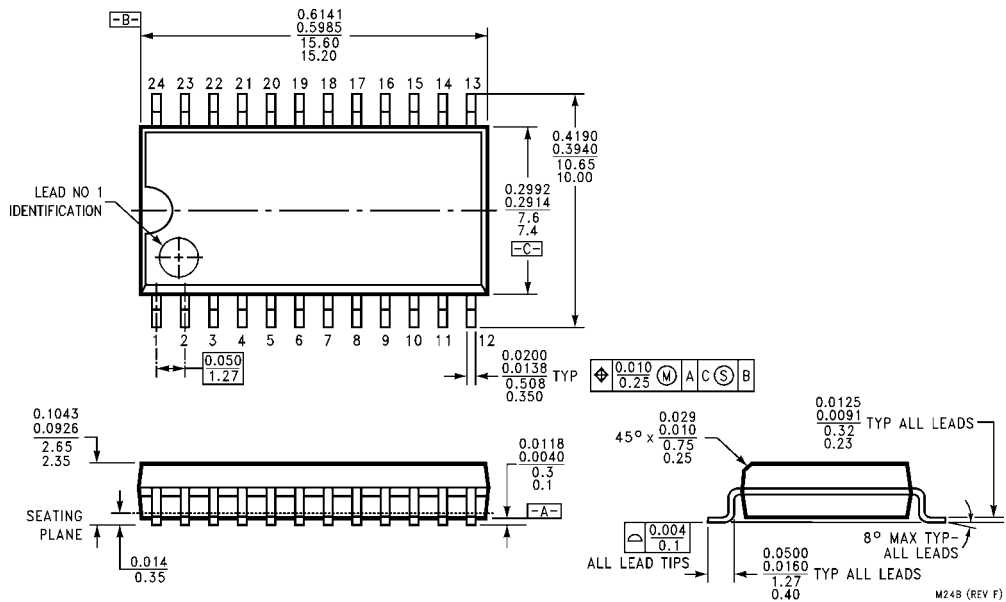
Symbol	Parameter	Conditions	Typ	Guaranteed Limit	Units
t_{PHL} , t_{PLH}	Maximum Propagation Delay, $\overline{G1}$, $\overline{G2}$ or A, B, C, D		21	32	ns

AC Electrical Characteristics $V_{CC} = 2.0V$ to $6.0V$, $C_L = 50$ pF, $t_r = t_f = 6$ ns (unless otherwise specified)

Symbol	Parameter	Conditions	V_{CC}	$T_A = 25^\circ C$		$T_A = -40$ to $85^\circ C$		Units
				Typ	Guaranteed Limits			
t_{PHL} , t_{PLH}	Maximum Propagation Delay, $\overline{G1}$ or $\overline{G2}$ or A, B, C, D		2.0V	63	160	190	ns	
			4.5V	24	36	42		
			6.0V	20	30	35		
t_{TLH} , t_{THL}	Maximum Output Rise and Fall Time		2.0V	25	75	95	ns	
			4.5V	7	15	19		
			6.0V	6	13	16		
C_{PD}	Power Dissipation Capacitance (Note 6)			90			pF	
C_{IN}	Maximum Input Capacitance			5	10	10	pF	

Note 6: C_{PD} determines the no load dynamic power consumption, $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$, and the no load dynamic current consumption, $I_S = C_{PD} V_{CC} f + I_{CC}$.

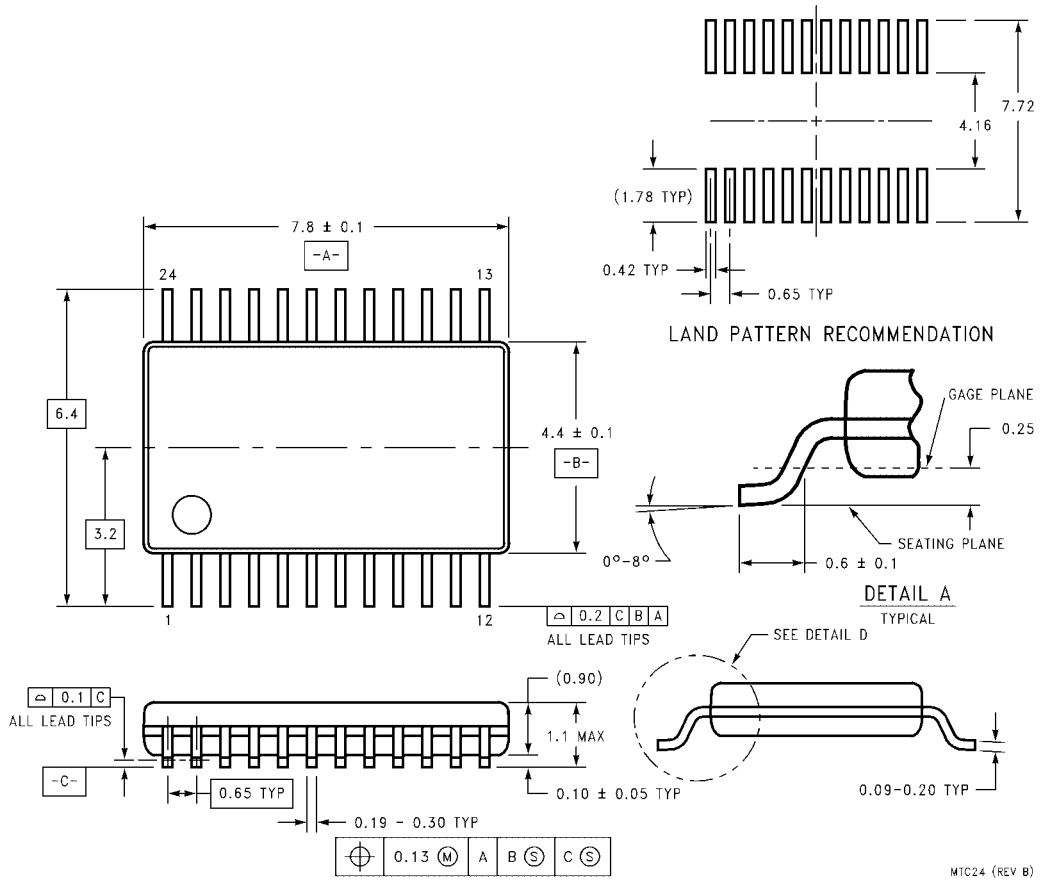
Physical Dimensions inches (millimeters) unless otherwise noted



**24-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide
Package Number M24B**

MM74HC154

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)

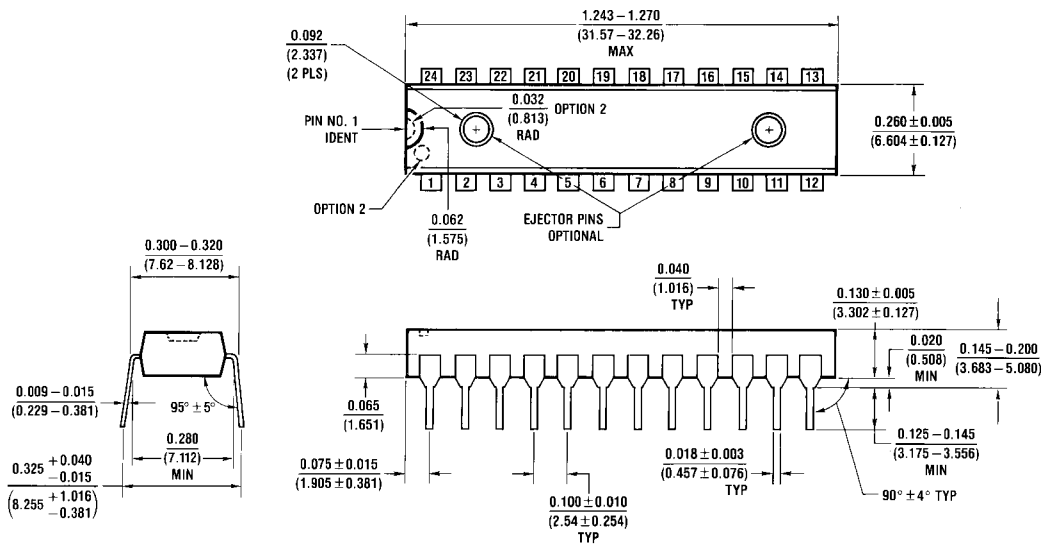


**24-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
 Package Number MTC24**

MTC24 (REV B)

Physical Dimensions

inches (millimeters) unless otherwise noted (Continued)



N24C (REV F)

**24-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide
 Package Number N24C**

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